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NOTES ON SOME NEW MEXICAN ASHMUNELLAS.

 BY H. A. PILSBRY AND JAS. H. FERRISS.

Since the publication of the results of our work on *Ashmunella* in 1905,¹ various correspondents have contributed specimens which throw light upon a number of dubious points relative to the group of species inhabiting the Sierra Blanca and Sacramento ranges, in New Mexico, east of the Rio Grande.

There can be no doubt that a systematic campaign in this region by collectors who are not afraid of hard work, and who get live shells, would be well rewarded by a most interesting catch. It is absolutely essential, however, to get to the mountain-tops, and to dig deep in the rock-heaps. You will need a Ferriss hoe and stout gloves, and you must forget fatigue.

ASHMUNELLA RHYSSA TOWNSENDI (Bartsch). Plate VIII, figs. 1, 2.

Ashmunella townsendi Bartsch. Smiths. Misc. Coll., xlvii, p. 13 (Aug. 6, 1904).

Ashmunella rhyssa townsendi Bartsch, Pilsbry. Proc. A. N. S., Phila., 1905, p. 231.

This race differs from *A. r. miorhyssa* chiefly by its strongly-ribbed surface, like *A. altissima*, which, however, is far smaller, more depressed and more openly umbilicate. Three of the original lot of *townsendi*, taken by Prof. Townsend in the Sierra Blanca

¹ Mollusca of the Southwestern States, Proc. A. N. S., Phila., 1905, pp. 223-253.

above Ruidoso, N. M., sent by Prof. Cockerell, one with the spire broken, measure :

Alt. 8.8, — 8 mm.

Diam. 14.1, 14.8, 13 mm.

Whorls $5\frac{1}{2}$, — $5\frac{1}{2}$.

Ribs on the last whorl 60, 48, 46.

The number of ribs on the last whorl is only approximately stated, since on account of irregularities and minor wrinkles or ripples it is impossible to make a quite definite count.

The weak trace of a parietal tooth is visible in one of the specimens.

The two specimens examined by Mr. Bartsch measure 8.2×15 mm. The number of ribs is not stated.

These specimens are intermediate in character between the smaller and more strongly-wrinkled examples of *A. rhyssa*, collected by Mr. Ashmun, and the following form.

Thirteen examples, all dead and bleached, were taken by Mr. F. J. Phillips on the north slope of a small brook near Nogal Creek, at an elevation of 7500 ft., Lincoln Co., N. M., and recently sent to one of us, one being drawn in figs. 1, 2 of plate VIII. In general character the lot is quite uniform. There are 30 to 35 ribs on the last whorl; in a few cases as many as 40, by splitting or breaking up of a number of ribs. Ten of them, unbroken, measure as follows :

Alt. 8.1, 8, 7.9, 7.5, 8, 7.8, 7.8, 7.5, 7.1, 6.6 mm.

Diam. 13, 12.9, 12.8, 12.25, 12.2, 12, 12, 12, 11.5 mm.

In 8 out of 10 fully adult shells a parietal tooth is developed, varying from a mere trace in some to a well-developed though small tooth in three or four. In two fully adult shells there is no trace of a tooth. A low basal tooth is present in all, but in two or three it is barely perceptible. The largest shell has $5\frac{1}{3}$ whorls, the smallest barely 5.

This colony has the character of *townsendi*—small size and heavily-ribbed surface—more emphatically expressed than in the original *townsendi*, and compared directly with *rhyssa* it appears to be quite distinct; yet it is connected with *rhyssa* through the more finely-ribbed forms from above Ruidoso, so that the use of a trinomial seems to express its relations better than an arbitrary specific separation.

ASHMUNELLA RHYSSA (Ckll.) Plate VIII, figs. 3, 4, 5.

Professor Cockerell having found the unique type specimen of

A. r. hyporhyssa kindly sent it for study. It is wholly bleached, has lost the cuticle, and measures, alt. 9, diam. 15 mm., umbilicus 3.1 mm., and has $5\frac{1}{2}$ whorls. There is a very slight basal lip-tooth, and a small oblique parietal tooth, about 1.8 mm. long. The sculpture is decidedly finer than in *A. rhyssa*, agreeing closely with specimens of *A. r. miorhyssa* collected by Ashmun, which, however, differ by having a slightly smaller umbilicus, 2.3 to 2.5 mm. wide in a shell of nearly 16 mm. diam., and the aperture in *miorhyssa* is slightly larger. I can find no other differences between *miorhyssa* and *hyporhyssa*.

A. r. hyporhyssa was taken by Prof. C. H. T. Townsend "on the lower slopes of White Mt., above head of Ruidoso, Aspen belt, at about 9500 ft."

A. rhyssa and *A. r. miorhyssa* are from the Sierra Blanca.

Ashmunella rhyssa edentata Ckll.

A. rhyssa hyporhyssa Pils. Proc. A. N. S., Phila., 1905, pp. 228-231, pl. 12, f. 7-13, exclusive of synonym "*Polygyra r. hyporhyssa*" and quoted description of same.

Similar to *A. r. miorhyssa*, but frequently more depressed, with wider umbilicus, and generally without a parietal tooth, which is present in less than 5 per cent. of the specimens examined.

Sacramento Mountains, at various elevations, as given in the paper cited above. While but weakly differentiated from the Sierra Blanca forms, it is well to have a name for the Sacramento race, common in James Canyon near Cloudcroft.

I formerly united this race and *A. r. hyporhyssa*, in the absence of the type of the latter.

ABALONES AND THE EARTHQUAKE.

BY ROBERT E. C. STEARNS.

The Japanese abalone fishermen who have made their headquarters at Carmel Bay, a few miles south of Monterey, had planned to extend their operations to the more southerly part of the coast, on the shore of San Luis Obispo County. This was in August. Upon examination later on of the rocky region near Morro, where they expected to make a great haul, it was found that the sea-bed was coated with a greasy slime of a supposed bituminous character, which